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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,886	03/08/2002	Takashi Sasaki	220321US6	1153

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EXAMINER	
BATTAGLIA, MICHAEL V	

ART UNIT	PAPER NUMBER
2652	

DATE MAILED: 12/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/092,886	SASAKI ET AL.	
	Examiner	Art Unit	
	Michael V Battaglia	2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) *17-30* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 March 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of the species of Fig. 1 in the reply filed on September 22, 2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 8, 9 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Inoue (US 5,808,991).

In regard to claim 1, Inoue discloses an optical disc device (Figs. 23 and 24) in which a main beam spot (Fig. 2, element S3) and sub-beam spots (Fig. 2, elements S2 and S4) are formed on an information recording surface of an optical disc (Fig. 23, element 1 and Col. 30, lines 23-26) with irradiation of a laser beam, and laser power of said laser beam is intermittently boosted to record desired data on said optical disc by said main beam spot, said optical disc device comprising: light receiving means (Fig. 24, element 31b) for receiving a return light corresponding to one of said sub-beam spots (Fig. 2, element S2), which is formed on preceding side with respect to scan of said main beam spot (Col. 22, line 53), and outputting a light detection result; correcting means (Figs. 23 and 24, element 65) for suppressing changes in signal level of the light detection result caused upon boosting of the laser power of said laser beam (Col. 9, lines 38-41 and 51-59 and Col. 23, lines 16-19); and determining means (Figs. 23 and 24, element 62) for determining the light detection result obtained through said correcting means, and detecting the presence of defects on said optical disc (Col. 23, lines 20-30).

In regard to claim 8, Inoue discloses an optical disc device (Figs. 23 and 24) comprising: a light source (Fig. 23, element 21) for emitting a laser beam; a diffraction grating (Fig. 23, element 50) for generating a main optical beam and at least first and second optical beams from the laser beam emitted from said light source, and forming a main beam spot (Fig. 2, element S3) and sub-beam spots (Fig. 2, elements S2 and S4) on an information recording surface of an optical disc (Fig. 23, element 1 and Col. 30, lines 23-26); a photo detector (Fig. 24, element 31b) for receiving

a return light corresponding to one of said sub-beam spots (Fig. 2, element S2), which is formed on preceding side with respect to scan of said main beam spot (Col. 22, line 53), and outputting a light detection result; and a determination circuit (Figs. 23 and 24, element 62) for determining the light detection result of said photo detector, and detecting the presence of defects on said optical disc (Col. 23, lines 20-30).

In regard to claim 9, Inoue discloses that said optical disc device further comprises a correction circuit (Figs. 23 and 24, element 65) for suppressing changes in signal level of the light detection result caused upon boosting of laser power of said laser beam (Col. 9, lines 38-41 and 51-59 and Col. 23, lines 16-19); and said determination circuit determines the light detection result obtained through said correction circuit, and detects the presence of defects on said optical disc (Fig. 24).

In regard to claim 16, Inoue discloses a control method for an optical disc device (Figs. 23 and 24) in which a main beam spot (Fig. 2, element S3) and sub-beam spots (Fig. 2, elements S2 and S4) are formed on an information recording surface of an optical disc (Fig. 23, element 1 and Col. 30, lines 23-26) with irradiation of a laser beam, and laser power of said laser beam is intermittently boosted to record desired data on said optical disc by said main beam spot, said method comprising the steps of: suppressing changes in signal level of a light detection result (Fig. 24, output of element 31b) caused upon boosting of the laser power of said laser beam (Figs. 23 and 24, element 65; Col. 9, lines 38-41 and 51-59; and Col. 23, lines 16-19), the light detection result being obtained by receiving a return light corresponding to one of said sub-beam spots (Fig. 2, element S2), which is formed on preceding side with respect to scan of said main beam spot (Col. 22, line 53); and determining the light detection result and detecting the presence of defects on said optical disc (Col. 23, lines 20-30).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue as in view of Kanno et al (hereafter Kanno) (US 6,101,163).

Inoue discloses the optical disc device of claims 1 and 9 and suggests application of the invention to an optical disc (Col. 30, lines 22-25) and removal of adverse influences from a verifying signal, which is produced from the light detection result (Fig. 24 and Col. 30, lines 3-8). Inoue does not disclose that the correcting means further suppresses changes in signal level of the light detection result caused with meandering of a groove formed in said optical disc.

Kanno discloses suppressing changes in signal level of a light detection result caused with meandering of a groove formed in an optical disc and teaches that doing so will cancel a wobble signal caused by meandering grooves which as leaked into a reproduction signal (Col. 5, lines 36-44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the optical disc device of Inoue compatible with optical discs containing meandering grooves by enabling the correcting means of Inoue to suppress changes in signal level of the light detection result of Inoue caused by the adverse influence of the meandering grooves or wobble that leaks into the light detection result as suggested by Kanno, the motivation

being to increase the compatibility of the optical disc device of Inoue and suppress resulting adverse influence of a meandering groove in the light detection result.

7. Claims 1, 3, 4, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimano et al (hereafter Shimano) (US 6,400,664) in view of Szerlip (US 4,571,716) and further in view of Inoue.

In regard to claim 1, Shimano discloses an optical disc device in which a main beam spot (Fig. 1, element 108) and sub-beam spots (Fig. 1, elements 109 and 110) are formed on an information recording surface of an optical disc (Fig. 1, element 107) with irradiation of a laser beam, and laser power of said laser beam is intermittently boosted to record desired data on said optical disc by said main beam spot, said optical disc device comprising: light receiving means (Figs. 1 and 3, element 114) for receiving a return light corresponding to one of said sub-beam spots (Fig. 1, element 108), which is formed on preceding side with respect to scan of said main beam spot (Fig. 3), and outputting a light detection result. Shimano does not disclose that the optical disc device comprises a correcting means for suppressing changes in signal level of the light detection result caused upon boosting of the laser power of said laser beam and determining means for determining the light detection result obtained through said correcting means, and detecting the presence of defects on said optical disc.

Szerlip discloses a light receiving means (Fig. 1, element 41) for receiving a return light corresponding to one (Figs. 1 and 3, element 21) of sub-beam spots (Figs. 1 and 3, elements 15, 21 and 37), which is formed on preceding side with respect to scan of said main beam spot (Fig. 3), and outputting a light detection result and a determining means (Fig. 2, element 65 and Col. 7, lines 29-39) for determining the light detection output, and detecting the presence of defects on an optical disc (Fig. 1, element 11). Szerlip teaches that as a result of defect detection and subsequent

defect processing (Col. 4, lines 50-65), the recording of data on defective regions of the optical disc is avoided and recording efficiency is substantially improved (Col. 2, lines 33-35 and Col. 4, line 65-Col. 5, line 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate into the optical disc device of Shimano the determination means and subsequent defect processing of Szerlip to determine the light detection result of the light receiving means of Shimano and detect the presence of defects on the optical disc of Shimano, the motivation being to avoid data recording on defective regions of the optical disc and to substantially improve recording efficiency.

Inoue discloses a correcting means (Fig. 24, elements 65 and 102) for suppressing changes in signal level of the light detection result caused upon boosting of the laser power of said laser beam (Col. 9, lines 51-59).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate into the opical disc device of Shimano in view of Szerlip the correcting means of Inoue and for the determining means of Szerlip to obtain the light detection result through the correcting means of Inoue, the motivation being to suppress changes in signal level of the light detection result caused upon boosting of the laser power of the laser beam of Shimano.

In regard to claim 3, Shimano discloses that said sub-beam spots are formed as a pair of beam spots produced on both sides of said main beam spot (Fig. 1, elements 109 and 110); and said sub-beam spot formed on the preceding side is one of said pair of beam spots, which precedes in both circumferential and radial directions of said optical disc (Fig. 3).

In regard to claim 4, Shimano discloses that said sub-beam spots are formed as a pair of beam spots produced on both sides of said main beam spot (Fig. 1, elements 109 and 110); and said optical disc device includes light receiving devices (Figs. 1 and 3, elements 114 and 113) for receiving said pair of beam spots, respectively, and processes light detection results of said light receiving devices to generate a tracking error signal (Fig. 3, TR signal), each of said light receiving devices having a light receiving surface divided by a division line extending in the circumferential direction of said optical disc (Fig. 3).

In regard to claim 6, the subsequent defect processing of Szerlip temporarily suspends a writing process in a defective area based on a determination result of said determination circuit (Col. 4, lines 50-58).

In regard to claim 7, the subsequent defect processing of Szerlip executes an alternative process on data, which is assigned to writing to be made in a defect containing area, based on a determination result of said determination circuit (Col. 4, lines 50-65).

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimano in view of Szerlip and further in view of Inoue as applied to claim 1 above, and further in view of Roh (US 6,690,633).

Shimano in view of Szerlip and further in view of Inoue disclose the optical disc device of claim 1 that includes the subsequent defect processing of Szerlip, which writes in a defective area (Col. 4, lines 58-61). Shimano in view of Szerlip and further in view of Inoue do not disclose that an amount of light for writing is changed in a defective area based on a determination result of said determination circuit.

Roh discloses changing an amount of light for writing in a defective area based on a defect determination result to maintain a constant asymmetric ratio (Col. 6, lines 61-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to change an amount of light for writing in a defective area based on a determination result of the determination circuit of Szerlip in the optical disc device of Shimano in view of Szerlip and further in view of Inoue as suggested by Roh, the motivation being to maintain a constant asymmetric ratio.

9. Claims 8, 11, 12, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimano in view of Szerlip.

In regard to claim 8, Shimano discloses an optical disc device comprising: a light source (Fig. 1, element 101) for emitting a laser beam; a diffraction grating (Fig. 2, element 102) for generating a main optical beam (Fig. 1, element 108) and at least first and second optical beams (Fig. 1, elements 109 and 110) from the laser beam emitted from said light source, and forming a main beam spot and sub-beam spots on an information recording surface of an optical disc (Fig. 1, element 107); and a photo detector (Figs. 1 and 3, element 114) for receiving a return light corresponding to one of said sub-beam spots (Fig. 1, element 109), which is formed on preceding side with respect to scan of said main beam spot (Fig. 3), and outputting a light detection result. Shimano does not disclose that the optical disc device also comprises a determination circuit for determining the light detection result of said photo detector, and detecting the presence of defects on said optical disc.

Szerlip discloses an optical disc device comprising: a light source (Fig. 1, element 33) for emitting a laser beam; a photo detector (Fig. 1, element 41) for receiving a return light corresponding to a sub-beam spot (Figs. 1 and 3, element 21), which is formed on preceding side with respect to scan of a main beam spot (Fig. 3, element 13), and outputting a light detection result; and a determination circuit (Fig. 2, element 65 and Col. 7, lines 29-39) for determining the

light detection result of said photo detector, and detecting the presence of defects on an optical disc (Fig. 1, element 11). Szerlip teaches that as a result of defect detection and subsequent defect processing (Col. 4, lines 50-65), the recording of data on defective regions of the optical disc is avoided and recording efficiency is substantially improved (Col. 2, lines 33-35 and Col. 4, line 65-Col. 5, line 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate into the optical disc device of Shimano the determination circuit and subsequent defect processing of Szerlip to determine the light detection result of the photo detector of Shimano and detect the presence of defects on the optical disc of Shimano, the motivation being to avoid data recording on defective regions of the optical disc and to substantially improve recording efficiency.

In regard to claim 11, Shimano discloses that said sub-beam spots are formed as a pair of beam spots produced on both sides of said main beam spot (Fig. 1, elements 109 and 110); and said sub-beam spot formed on the preceding side is one of said pair of beam spots, which precedes in both circumferential and radial directions of said optical disc (Fig. 3).

In regard to claim 12, Shimano discloses that said sub-beam spots are formed as a pair of beam spots produced on both sides of said main beam spot (Fig. 1, elements 109 and 110); and said optical disc device includes light receiving devices (Figs. 1 and 3, elements 114 and 113) for receiving said pair of beam spots, respectively, and processes light detection results of said light receiving devices to generate a tracking error signal (Fig. 3, TR signal), each of said light receiving devices having a light receiving surface divided by a division line extending in the circumferential direction of said optical disc (Fig. 3).

In regard to claim 14, the subsequent defect processing of Szerlip temporarily suspends a writing process in a defective area based on a determination result of said determination circuit (Col. 4, lines 50-58).

In regard to claim 15, the subsequent defect processing of Szerlip executes an alternative process on data, which is assigned to writing to be made in a defect containing area, based on a determination result of said determination circuit (Col. 4, lines 50-65).

10. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimano in view of Szerlip as applied to claim 8 above, and further in view of Roh.

Shimano in view of Szerlip disclose the optical disc device of claim 8 that includes the subsequent defect processing of Szerlip that writes in a defective area (Col. 4, lines 58-61). Shimano in view of Szerlip do not disclose that an amount of light for writing is changed in a defective area based on a determination result of said determination circuit.

Roh discloses changing an amount of light for writing in a defective area based on a defect determination result to maintain a constant asymmetric ratio (Col. 6, lines 61-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to change an amount of light for writing in a defective area based on a determination result of the determination circuit of Szerlip in the optical disc device of Shimano in view of Szerlip as suggested by Roh, the motivation being to maintain a constant asymmetric ratio.

Citation of Relevant Prior Art

11. Karaki et al (US 5,130,965) (Fig. 4) and Matsuoka et al (US 5,267,226) (Fig. 3) disclose a photodetector that receives light from a main beam and sub-beams and uses a preceding sub-beam to detect defects in the optical recording medium. Miyauchi (US 4,355,318) (Fig. 3) and

Yamaguchi et al (US 5,365,535) disclose a correcting circuit for suppressing changes in the light detection result caused by boosting of the laser power during recording.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V Battaglia whose telephone number is (703) 305-4534. The examiner can normally be reached on 5-4/9 Plan with 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Battaglia

THANG V. TRAN
PRIMARY EXAMINER